



## ENERGY SUPPLY SECTOR GHG REDUCTION POLICY OPTIONS PREPARED FOR TWG CALL #6, DECEMBER 1, 2005

### Potential Emission Reductions \*

**High (H):** At least 1 Million Metric Tons (MMT) carbon dioxide equivalent (CO<sub>2</sub>e) per year by 2020 (~1% of current NM emissions)

**Medium (M):** From 0.1 to 1 MMT CO<sub>2</sub>e per year by 2020

**Low (L):** Less than 0.1 MMT CO<sub>2</sub>e per year by 2020

**Uncertain (U):** Not able to estimate at this time

### Potential Cost or Cost Savings \*

**High (H):** \$50 per Metric Ton CO<sub>2</sub>e (MTCO<sub>2</sub>e) or above

**Medium (M):** \$5-50/MTCO<sub>2</sub>e

**Low (L):** Less than \$5/MTCO<sub>2</sub>e

**Cost Savings:** Options that save money, i.e., that have "negative costs."

**Uncertain (U):** Not able to estimate at this time

\* "Potential" here connotes rough initial estimate based in part on experience in other states. Also, several measures may overlap in terms of emissions reductions and/or cost impacts. Estimates assume measures would be implemented independently from other measures.

### Definition of Priorities for Analysis:

- **High:** High priority options will be analyzed first.
- **Medium:** Medium priority options will be analyzed next, time and resources permitting.
- **Low:** Low priority options will be analyzed last, time and resources permitting.
- **"TBD":** Still to be determined by the TWG

\*\* Options marked with a double asterisk (\*\*) indicate options that are at least partially "base case" policies, i.e., that have been or will be implemented at some level in Arizona. Please see <http://www.azclimatechange.us/ewebeditpro/items/O40F6847.pdf> for an initial, non-comprehensive sampling of such policies as they relate to the policy option categories listed below.

Comments or priorities highlighted in **yellow** were discussed and affirmed during the Arizona Climate Change Advisory Group (CCAG) Meeting #2 on September 29, 2005. CCAG meeting summary is posted at <http://www.azclimatechange.us/documents.cfm> (click on CCAG).

Option No.	GHG Reduction Policy Option	Priority for Analysis	Potential GHG Emissions Reductions	Potential Cost or Cost Savings	Ancillary Impacts, Feasibility Considerations	Notes
<b>1.</b>	<b>Renewable and Low Emitting Energy</b>					
1.1	Renewable Portfolio Standard/Environmental Portfolio Standard (including consideration of an expanded EPS)	H	H	L/M		
1.2	Public Benefit Charge Funds	H	H	L/M		
1.3	Direct Renewable Energy Support: including Tax Credits and Incentives, R&D, and siting/zoning	H	L - H	M		
1.4	Green Power Purchases and Marketing	M	L/M – depends on technology & purchase level	L/M – depends on technology & purchase level		
1.5	Landfill Gas Recovery (see also Waste)	M	L	L		
<b>2.</b>	<b>Advanced Fossil Fuel Strategies</b>					
2.1	Carbon Capture and Sequestration (CCS)	M	H	H		
2.2	Combined H2/electricity production from fossil fuels with sequestration	M	H	H		
2.3	Advanced fossil technologies (e.g. IGCC)	M				
2.4	Fuel Cell Development Incentives	M	L	H		
2.5	Tax Credits and Incentives	M				
2.6	Research and Development (R&D)	M	U (L in short term)	U		
<b>3.</b>	<b>Other Electricity Measures</b>					
3.1	Efficiency Improvements and Repowering Existing Plants	M	U	U		
3.2	Nuclear Plant Relicensing and Upgrading	M				
<b>4.</b>	<b>Distributed Generation</b>					

Option No.	GHG Reduction Policy Option	Priority for Analysis	Potential GHG Emissions Reductions	Potential Cost or Cost Savings	Ancillary Impacts, Feasibility Considerations	Notes
4.1	Combined Heat and Power Incentive Policies and Barrier Reduction	M	M/H	L		
<b>5.</b>	<b>Emissions Policies</b>					
5.1	GHG Cap and Trade	H	H	U		Issues with implementation level were raised; some TWG members want only a national cap & trade. Others expressed an interest in state or regional.
5.2	Generation Performance Standards	H	H	U		
5.3	Carbon Intensity Target	H	H	U		
5.4	GHG Offset/mitigation requirements for new power plants	H				
5.5	GHG Offset/mitigation requirements for existing power plants	H				
5.6	Voluntary Utility CO2 Targets and/or Trading	H	U	U (typically L)		Some TWG members expressed that utilities are now able to set voluntary targets without any policy, so there is no need to explore this as an option.
5.7	CO2 Tax	H	L to H	L to H – depends on tax level		Some TWG members are quite interested in a CO2 tax, while others were not.
5.8	Environmental dispatch	M	H	H		One TWG member is very enthusiastic about environmental dispatch as an option, while other TWG members showed little or no interest.

<b>6.</b>	<b>Grid and Utility Policies</b>					
6.1	Interconnection Rules for clean, distributed generation*	H	U	U		
6.2	Remove Transmission and Other Barriers for Renewable and other Clean DG*	H	U	U		
6.3	Net Metering	H	U	U		
6.4	Pricing and metering strategies	H				
6.5	Remove Utility Rate Barriers	H				
6.6	Advanced Metering	H				
6.7	Time-of-use Rates	H	U	U		CEC estimates 3 – 12% reduction in peak demand as result, emissions outcome ambiguous
6.8	Load Management (no clear GHG savings)	H	U	U		
6.9	Transmission System Upgrading	H	U	U		
6.10	Reduce Transmission and Distribution Line Loss	H	U	U		
6.11	Integrated Resource Planning	H (added by CCAG)				
6.12	Aligning utility rates with public interest	H (added by CCAG)				Remove automatic fuel pass-through adjustors
<b>7.</b>	<b>Education and Awareness</b>					
7.1	Brownfield Re-development	M	U	U		
7.2	Environmental (emissions) Disclosure	H	U	U		
7.3	Public Education	H	U	U		
<b>8.</b>	<b>Natural Gas System</b>					
8.1	Leak reduction program	H				
<b>9.</b>	<b>Hydrogen</b>					
9.1	Incentives for hydrogen development	M				